AMENDMENTS TO THE CLAIMS

1. (Currently amended) A self-contained seed treater comprising,

a drum having a surrounding wall and a top opening and a central discharge opening (56),

a rotatable shaft mounted in the drum on a vertical axis,

a spreader mounted on the shaft adjacent the top of the drum, and adapted to receive seed flowing downwardly through the top opening, and operable for throwing the seed outwardly into engagement with the surrounding wall, the spreader (90) having a bottom plate (92) which is of conical shape ,

an upper bowl below the spreader, and tapering downwardly and having a bottom opening, and being otherwise imperforate and secured to the surrounding wall without space between itself and the surrounding wall,

whereby all the seed on the surrounding wall thrown from the spreader will flow into the upper bowl,

the construction of the seed treater being such as to enable the seed in the upper bowl t o flow through the bottom opening in the upper bowl and through the central discharge opening (56) of the seed treater into a receptacle, and

the seed treater including power transmitting means operably connecting power means for rotating the shaft (68).

2. (Previously presented) A seed treater according too claim 1 wherein,

the drum has a top closure plate (48) in which the top opening is formed, and

the drum includes a flange unit on the top closure plate (48) having a central

opening co-axial with the top opening of the drum and a flange element spaced axially from the top closure plate (48) and extending transversely of the axis, for detachably securing it the drum (44) to an overhead supporting structure , and

a downwardly directed cone shaped conical bottom closure plate (54), with a central discharge opening (56) forming the bottom opening and forming a bottom bowl, the bottom closure plate (54) secured to the surrounding wall, the bottom bowl coaxially positioned with the drum and surrounding imperforate element positioned for receiving the grain falling through the drum.

3. (Previously presented) A seed treater according to claim 1 and including,

the spreader (90) bottom plate (92) having vertical blades (94) opening radially outwardly following the downward slope of the bottom plate (92),

upper and lower bearing means for supporting the shaft,

bearing supporting means supporting the bearing means within the drum, and

the bearing supporting means being operable for detachably mounting the bearing supporting means on the surrounding wall.

4. (Currently amended) A seed treater according to claim 3, wherein,

the drum is cylindrical and the bearing supporting means includes upper and lower bearing support means including a protected upper bearing support between the spreader and the upper bowl,

the upper bearing support extends diametrically across the drum and includes spaced apart side bars positioned vertically on edge, and having end plates also positioned on edge by which the upper bearing support is detachably secured to the

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surrounding wall,

the upper bearing support also including a central horizontal plate secured to the side bars, and

the upper bearing means is detachably and fixedly mounted on the end plates,

whereby relatively great space is provided outwardly of the side bars, and between the side bars radially outwardly beyond the central horizontal plate to enable the seed to flow freely downwardly through the drum.

5. (Previously presented) A seed treater according to Claim 4 wherein,

the upper bearing support includes holes in curved end plates (80) for receiving outlet ends of fluid flow tubes (84) from the exterior leading to a position adjacent the shaft for conducting fluid into the drum to a position adjacent the shaft.

6. (Previously presented) A seed treater according to claim 1 and including a rotary applicator between the spreader and the upper bowl,

the applicator (100) has a central hub (102) secured to the shaft, and a bottom plate (101) with vertical radial blades (106); the applicator (100) is of lesser depth than the spreader (90), and

is mounted on the shaft and rotatable therewith and positioned for receiving fluid from the terminal ends of the fluid flow tubes (84), and operable for throwing fluid that is placed thereon outwardly into engagement with the falling seed kernels on the wall of the drum.

7. (Previously presented) A seed treater according to claim 5 and including

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a rotary applicator mounted on the shaft and rotatable therewith,

and the rotary applicator is positioned between the upper bearing support and the upper bowl, and thereby positioned below the fluid flow tubes (84) for receiving thereon fluid introduced into the drum.

8. (Currently amended) A seed treater according to claim 7 wherein,

at least one upper coater (112), is smaller in diameter than the spreader (90) and has a central hub __(114)__ by which the upper coater (112), is mounted on the shaft 68, for rotation therewith; the upper coater (112) having bottom plates (116) of conical shape, and vertical- radial blades (118) opening radially outwardly; the upper coater (112) is mounted below the upper bowl (104);

the upper bowl (104) fixedly mounted in the drum (44);

at least one central bowl (120) fixedly mounted in the drum (44) below at least one upper coater (112), and tapering downwardly and having a bottom opening, and being otherwise imperforate and secured to the surrounding wall without space between itself and the surrounding wall, the at least one central bowl (120) receives the mixture from the wall __(46)__, in the area radially outwardly from the upper coater __(112)__ and the mixture then flows through this central bowl and down through its bottom opening _(122)__ ;

at least one lower coater (124), is smaller in diameter than the spreader (90) and has a central hub which the lower coater (124), is mounted on the shaft (68), for rotation therewith; the lower coater (124) having bottom plates of conical shape, and vertical-radial blades opening radially outwardly; the lower coater (124) is mounted below the at least one central bowl (120);

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the at least one lower coater (124) mounted on the shaft (68) above the hogback (76);

below the hogback (76) a conical bottom closure plate (54), with a central discharge opening (56), forming a bottom bowl (54); and

at least one pair of wipers (128, 129, 130) are in wiping contact with each of the said upper bowl (104), the at least one central bowl (120) and the bottom bowl (54); each pair of wipers at each of the upper bowl (104), the at least one central bowl (120) and the bottom bowl (54) are mutually identical, and arranged symmetrically, on a common diameter, each of the at least one pari of wipers (128, 129, 130) are secured to the shaft (68) or the upper coater (112) for rotation with the rotation of the shaft (68);

the wipers in the different pairs for the upper bowl (104), the at least one central bowl (120) and the bottom bowl (54) differ in size and shape to accommodate the shape of the respective upper bowl (104), the at least one central bowl (120) and the bottom bowl (54);

for each wiper pair, each wiper (128, 129, 130) includes a mounting piece (132. 142, 146) and a blade (133) extending down into the respective upper bowl (104), at least one central bowl (120) and bottom bowl (54); the blade (133) is positioned at the periphery of each of the respective bowls (104, 120 and 54); the blade (133) having an upper edge (135) which is inclined upwardly in radial outward direction to a point (136) above a flange (110) of the each of the respective upper bowl and at least one central bowl (104, 120) and to a point at the uppermost point of the bottom bowl (54) such that the blade (133) engages the wall of the drum;

each blade (133) has a radial outer edge (138) which also engages the flange (136) with wiping contact; a lower edge (139) of the blade (133) engages the wall of the

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respective bowl (104, 120, 54) down to a point (141) proximal the respective bowl bottom or discharge opening (108, 122, 56); each of the respective blades (133) has a lower/inner edge (142) which extends up to the mounting piece (132);

the blade (133) is made of relatively stiff yet flexible material (10) which will yield upon engaging an obstacle;

the blades (133) are spaced apart, engaging the bowl only at the outer portion thereof, and leaving an empty space therebetween,

the blades (133), in each pair, extend approximately threefourths of a slant height of the sloped bottom of each of the respective bowls (104, 120, 54), from an upper edge of the each of the respective bowls (104, 120, 54) leaving the lower one- fourth of the slant height of each of the sloped bottoms of each of the respective bowls (104, 120, 54) open;

the wipers (128, 129, 130), upon rotation with the shaft (68), wipe the respective bowls (104, 120, 54) and wipe the mixture and work it inwardly so as to position the mixture directly over the bottom or discharge opening (108, 122, 56) of each of the respective bowls (104, 120, 54);

each of the spreader, applicator, and upper coater and the at least one lower coater, includes a bottom plate extending substantially its full area, and vertical blades extending upwardly from bottom plate, and

the spreader (90) bottom plate (92) and blades (94) have a central opening (96), for receiving the upper bearing __(70)__;

the upper coater (112), is positioned close to the upper bowl (104), and as the grain and fluid mixture flows down the upper bowl (104), it falls into the upper coater (112), and is again thrown out against the surrounding wall (46). this action produces a

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mixing effect, which is added to that of the spreader (90), and upper bowl (104);

the at least one central bowl (120) receives the mixture from the wall (46), in the area radially outwardly from the upper coater (112) and the mixture then flows through the at least one central bowl (120) and down through its bottom opening (122);

the lower coater (124) is operable for throwing the mixture that falls into it from the at least one central bowl (120), in outward direction against the surrounding wall (46).

9. (Currently amended) A seed treater according to claim 3 and including,

an upper rotary coater below the upper bowl and secured to the shaft , and positioned for receiving seed and fluid from the upper bowl and operable for throwing seed and fluid outwardly against the wall of the drum, and

the upper coater (112), is smaller in diameter than the spreader (90) and has a central hub 114 by which the upper coater (112) is mounted on the shaft __(68)__ for rotation therewith; the upper coater (112) having bottom plates (116) of conical shape, and vertical- radial blades (118) opening radially outwardly.

10. (Currently amended) A seed treater according t o claim 9 and including,

a center bowl substantially identical with the upper bowl below the upper coater, and fixedly mounted in the drum substantially identically to the mounting of the upper bowl.

11. (Currently amended) A seed treater according to claim 10 and including,

a lower rotary coater substantially identical with the upper rotary coater and mounted below the central bowl and mounted substantially identically to the mounting of

~~similarly to~~ the upper rotary coater , and

the lower rotary coater (124), is smaller in diameter than the spreader (90) and has a central hub _(114)_ by which the lower rotary coater (124) is mounted on the shaft _(68)_ for rotation therewith; the lower coater (124) having bottom plates (116) of conical shape, and vertical- radial blades (118) opening radially outwardly.

12. (Currently amended) A seed treater according to claim 11 and including,

a hogback adjacent to the lower end of the drum and below the central bowl,

a conical bottom closure plate (54), with a central discharge opening (56), forming a bottom bowl (54) below the hogback (76); and

the hogback being constituted by a rigid elongated piece extending diametrically across the drum and secured at its ends to the surrounding wall includes a main structural member _(125)_, made up of a pair of plates _(126)_, disposed at an angle to each other and is disposed with the apex of the angle upwardly, and

lower bearing means mounted on and under the hogback and supporting the shaft.

13. (Previously presented) A seed treater according to claim 12 and including,

power means mounted on the exterior of the drum, and

power transmitting means operably connecting the power means and the shaft and extending into the drum and underlying the hog back to the shaft; the power transmitting means thereby shielded by the hogback from grain falling through the drum.

14. (Cancelled)

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15. (Original) A seed treater according to claim 1 and including,

in addition to the upper bowl,

a central bowl and a bottom bowl,

all concentric with the axis and through all of which the seed mixture flows, and

the seed treater includes rotary wipers secured to the shaft and extending into the respective bowls, and operable in response to rotation of the shaft, for wiping the floor of the bowls.

16. (Currently amended) Apparatus for treating seed, comprising,

a cylindrical drum having top and bottom openings, the bottom opening being ~~the~~ a central discharge opening (56);

the drum including means for mounting it on and below a floor in a building, and adapted to receive grains of different characteristics through the top opening, for mixing grains,

the drum including means therewithin for mixing the grains in response to the fall of the grains through the drum,

a spreader mounted on ~~the~~ a shaft adjacent the top of the drum, and adapted to receive seed flowing downwardly through the top opening, and operable for throwing the seed outwardly into engagement with the surrounding wall, the spreader (90) having a bottom (92) having a conical shape,

~~the~~ a spreader (90) bottom plate (92) having vertical blades (94) opening radially outwardly following the downward slope of the bottom plate (92),

and the apparatus including power means mounted on the drum for operating the mixing means.

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17. (Previously presented) Apparatus according to claim 16 and including,

fluid flow means (84) leading from the exterior into the interior of the drum for conducting liquid chemicals into the drum for mixing with the grains in the drum.

18. (Previously presented) A method of treating seeds utilizing the apparatus of claim 13 comprising:

adapting the apparatus for use in an elevator which includes a building with an elevated floor having a supply opening therethrough and a space below the floor for accommodating vehicles for receiving the seeds,

providing seeds to be treated on the elevated floor,

providing a self-contained treating unit having a top opening and a bottom opening for flow of seeds therethrough and through the treating unit, and treating the seeds as the seeds flow through the mixing unit; the bottom opening being the central discharge opening (56).

19. (Previously presented) A method according to Claim 18 and including the step,

introducing fluid into the treating unit with the introduction of the seeds, and treating the seeds with the fluid.

20. (Previously presented) A method according to Claim 19 for use in such elevator that includes a driveway in said space in the building for movement of vehicles on the driveway, and including the step,

introducing treated grain from the treating unit on the driveway and moving the vehicle from the building.

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17. (Previously presented) Apparatus according to claim 16 and including,

fluid flow means (84) leading from the exterior into the interior of the drum for conducting liquid chemicals into the drum for mixing with the grains in the drum.

18. (Previously presented) A method of treating seeds utilizing the apparatus of claim 13 comprising:

adapting the apparatus for use in an elevator which includes a building with an elevated floor having a supply opening therethrough and a space below the floor for accommodating vehicles for receiving the seeds,

providing seeds to be treated on the elevated floor,

providing a self-contained treating unit having a top opening and a bottom opening for flow of seeds therethrough and through the treating unit, and treating the seeds as the seeds flow through the mixing unit; the bottom opening being the central discharge opening (56).

19. (Previously presented) A method according to Claim 18 and including the step,

introducing fluid into the treating unit with the introduction of the seeds, and treating the seeds with the fluid.

20. (Previously presented) A method according to Claim 19 for use in such elevator that includes a driveway in said space in the building for movement of vehicles on the driveway, and including the step,

introducing treated grain from the treating unit on the driveway and moving the vehicle from the building.

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